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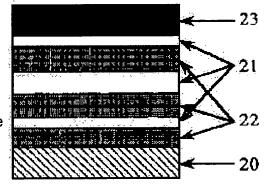
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## (54) DUAL WAVELENGTH ANTI-REFLECTION FILM

## (57) Abstract:

PURPOSE: To impart a sufficient anti-reflection effect to exposure light and alignment light and to provide an anti-reflection property to the wavelength (center wavelength) of exposure light covering a wide area by forming multilayered films alternately arranged with a high refractive index layers and an intermediate refractive index layers and a low refractive index layer as the outermost layer on the medium side.

CONSTITUTION: In the dual wavelength anti-reflection film having the minimum reflectance in the vicinity of the 1st wavelength of 248.4nm, and in the vicinity of the 2nd wavelength longer than the 1st wavelength, the anti-reflection film is constituted of multilayers consisting of the high refractive index layers and the intermediate refractive index layers arranged respectively alternately and of a low refractive index layer as the outermost layer on the medium side. One



of ZrO2, HfO2, Sc2O3 and Y2O3 is used for the high refractive index film. For example, three alternately repeated layers of HfO2 of the high refractive index film 21 and Al2O3 of the intermediate refractive index film 22 are put on a substrate made of a synthetic quartz as a lens so that the HfO2 layers and Al2O3 layer are respectively alternately arranged and further MgF2 layers of the low refractive index film 23 are formed thereon by a vacuum deposition method.

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